



UNITED STATES MARINE CORPS

MARINE AIRCRAFT GROUP 16 (REIN)
3D MARINE AIRCRAFT WING (FWD)
I MARINE EXPEDITIONARY FORCE (FWD)
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From: Commanding Officer, Marine Aircraft Group 16 (REIN)
To: All Rotary Wing Squadrons, Marine Aircraft Group 16 (REIN)
Subj: MAG-16 (REIN) DESERT LANDING POLICY AND MITIGATION STRATEGY

1. Proficiency in the core skill of desert landings is essential for assault support aircrew operating in support of Operation Iraqi Freedom (OIF). In order to mitigate some of the risk involved with desert landings, the following policy is in effect for all squadrons:

a. A "desert landing" is a landing executed in sand, loose or fine dirt, or other soil composition that lacks a bonding mechanism (vegetation, compression, water, concrete, asphalt, rock, etc.) and that has a high probability of producing brown-out conditions.

b. Desert landings to uncontrolled sites should only be executed as a last resort. Alternate landing sites - roads, improved surfaces, vegetated fields, irrigated areas and/or gravel surfaces shall be used to the maximum extent possible. Desert areas that have contrast, either rocks or vegetation, provide better visual cues and should be utilized before areas that provide no contrast during landing.

c. For pre-planned missions that include desert landing scenarios, pilots are required to coordinate with the supported unit to utilize a properly prepared landing zone (LZ). Brown-out mitigation techniques, such as dust abatement pallative, water spraying, and matting are suitable alternatives to the untreated desert LZ.

d. Should pilots be required to make a desert landing, the following actions will be taken:

(1) Aircraft Commander. The aircraft commander should execute the landing in most cases. If pilot and copilot

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experience and skill levels are equal, the aircraft commander shall decide who is best positioned to execute the landing.

(2) Communication. Communication with the supported unit in the zone must be attempted prior to entering.

(3) Wind direction and speed. Request supported unit provide wind speed and direction. Use visual cues in the area of the landing zone to verify wind speed and direction. Landing approach shall be made into the wind.

(4) Marking. The landing zone should be marked to the maximum extent possible, both day and night. If the zone is not marked, request that the supported unit mark the zone. The supported unit should provide night zone marking with chemsticks in a "T" or NATO "Y" shape, and they should be secured to the deck in order to provide visual reference for the aircrew all the way to the deck.

(5) Zone Evaluation. Aircrew should overfly the zone to conduct a thorough landing zone evaluation. All aircrew shall discuss the zone evaluation results prior to initiating landing.

(6) Crew Resource Management (CRM) Brief. Prior to entering the zone for the landing approach, the pilot-in-command should conduct a quick CRM brief for all crew members. That brief should include at a minimum, approach technique, power available versus power required, loss of visual contact actions for all aircrew (brown-out), wave-off parameters and direction, as well as pilot-at-controls (PAC) and pilot-not-at-controls (PNAC) scan responsibilities and instrument take off (ITO) procedures.

(7) During daylight, the PAC should execute his approach, being especially watchful below 25' above ground level (AGL) for signs of brown-out entry, and shall maintain ground reference. If the PAC loses ground reference, he should transition immediately to an instrument scan and execute pre-briefed ITO/wave-off procedures. In some cases, pilots may momentarily lose ground reference at 2-3 feet and then quickly regain reference. This is mitigated by a detailed brief and crew chief involvement, as the crew chiefs are able to maintain ground reference longer than the pilots, normally throughout the entire approach to landing. The crew chief should focus on any drift and call that to the PAC. When all crew members have lost contact with the ground or excessive drift occurs, the PAC

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should transition immediately to an instrument scan and execute pre-briefed ITO/wave-off procedures.

(8) The PNAC should call out altitude and airspeed below 200' AGL then pass the calls to the crewchief and AO at 25' to the deck. Calls should be made in the same sequence each time (Altitude then Airspeed), in order to simplify information processing by the PAC.

(9) After successfully executing the landing, preparations should be made to takeoff under similar conditions. Prior to takeoff, all aircrew shall again review power required versus power available, the conditions they expect upon liftoff, PAC and PNAC ITO scan responsibilities, wind direction and speed, and PAC takeoff technique.

(10) During takeoff the PNAC should call out altitude, airspeed, and torque below 200' AGL. Calls should be made in the same sequence each time (altitude, airspeed, then torque), in order to simplify information processing by the PAC. Vertical speed indicator (VSI) information may also be included at the PAC's discretion.

2. This policy and mitigation strategy is intended to enhance MAG-16 (REIN) preparedness for operations in the desert environment. Deviation from the above procedures may be warranted based on the tactical situation. The intent is to mitigate risk in perhaps our most dangerous flight profile - desert landings. The deserts of Iraq, Kuwait, Afghanistan, Southern California and Arizona have been the cause of many mishaps, lost lives, and injuries. As we are forced to operate in that regime, we need to do it smartly, professionally, and with a game plan in the cockpit that will maximize the chances for success. The above guidance is the minimum that shall occur; if you have personal techniques and CRM preferences, by all means, add them to your plan.


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